

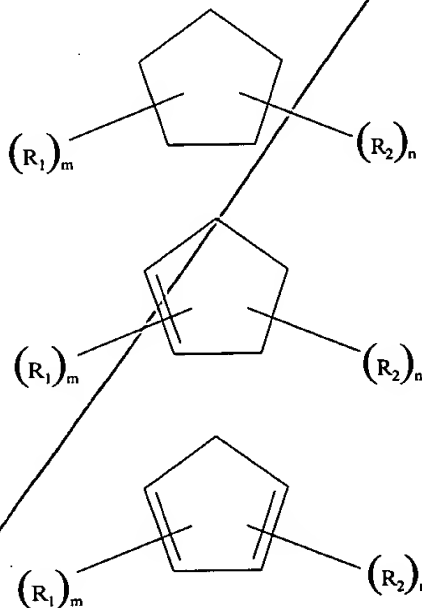


#6

APPENDIX B

CLEAN SET OF CLAIMS PER 06/12/01 AMENDMENT
U.S. APPLICATION SERIAL NO. 09/534,282

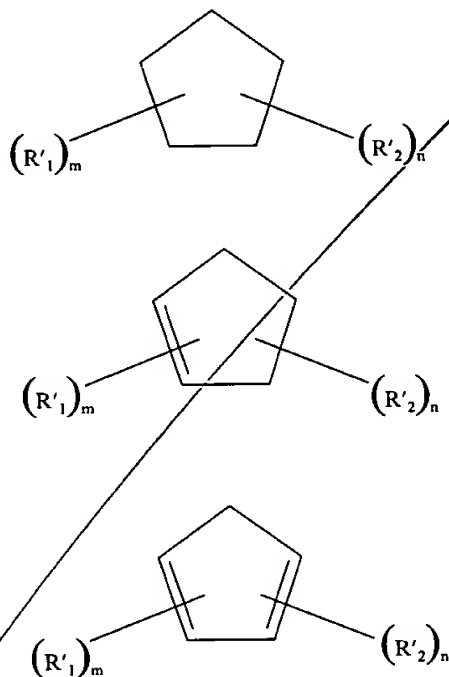
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1. (Once Amended) A magnetic recording medium, comprising:
a non-magnetic support;
a magnetic layer formed on the support; and
a lubricant layer over the magnetic layer, the lubricant layer including a compound selected from the group consisting of hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, hydrocarbyl-substituted cyclopentadiene, and mixtures thereof.
 2. (Once Amended) The magnetic recording medium of claim 1, wherein the lubricant layer includes a hydrocarbyl-substituted cyclopentane, a hydrocarbyl-substituted cyclopentene, or a hydrocarbyl-substituted cyclopentadiene as represented by the following respective formulas:



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wherein R_1 and R_2 are respectively a hydrocarbyl group, and m and n are respectively zero or a positive integer and the sum of $m + n$ is greater than zero.

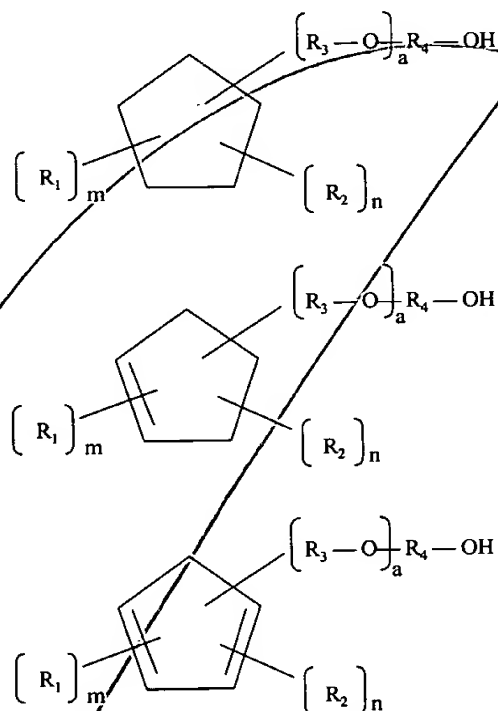
3. (Once Amended) The magnetic recording medium of claim 1, wherein the lubricant layer includes a hydrocarbyl-substituted cyclopentane, a hydrocarbyl-substituted cyclopentene, or a hydrocarbyl-substituted cyclopentadiene as represented by the following respective formulas:



wherein R'_1 and R'_2 are respectively a functionalized hydrocarbyl group which includes a functional group selected from -OH; -NH₂; carboxylic acid; carboxylic ester; phenolic ester; polyether; amide; amine; sulfonamide; thiophosphate; and phosphate, and m and n are respectively zero or a positive integer and the sum of $m + n$ is greater than zero.

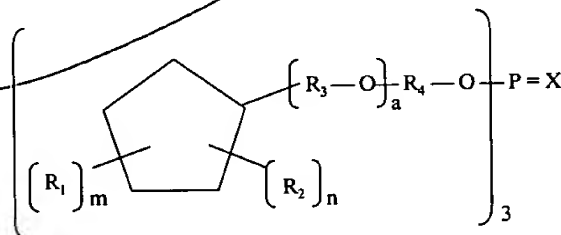
4. (Once Amended) The magnetic recording medium of claim 1, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene include at least one functional group selected from the group consisting of hydroxy, carboxylic acid, amine, carboxylic ester, carboxylic amide, phosphate, and sulfur-containing groups.

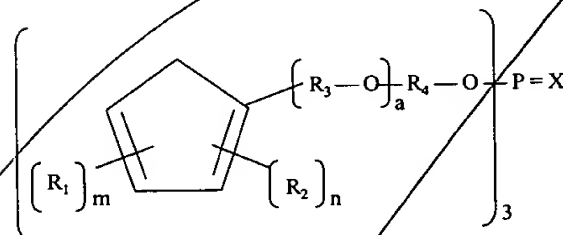
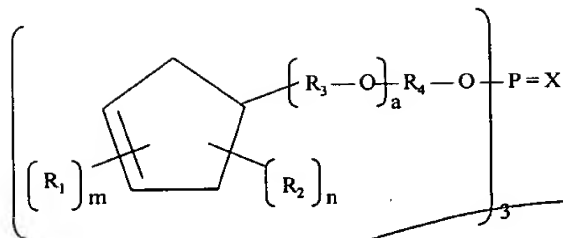
5. (Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



wherein a is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R₁, R₂, R₃, and R₄ are individually a hydrocarbyl group.

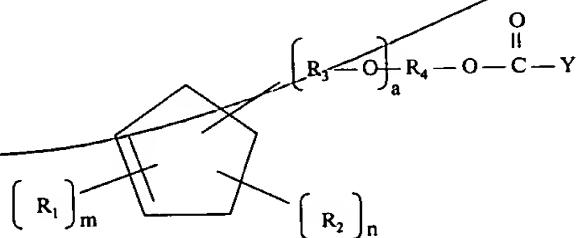
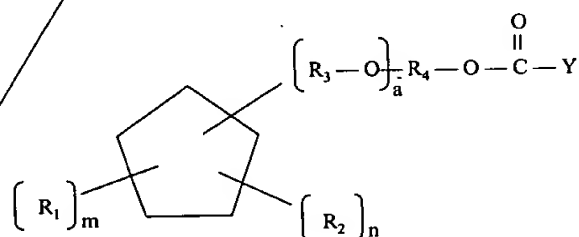
6. (Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

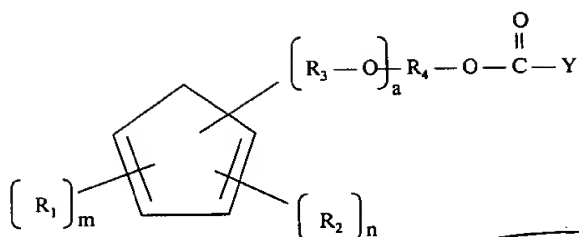




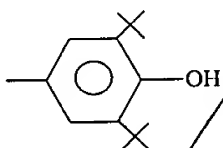
wherein a is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , R_3 , and R_4 are individually a hydrocarbyl group; X is either oxygen or sulfur.

7. (Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

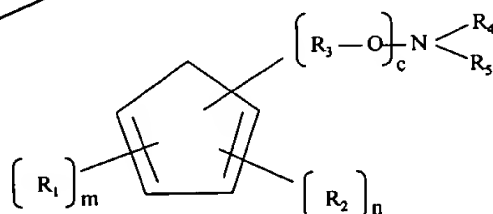
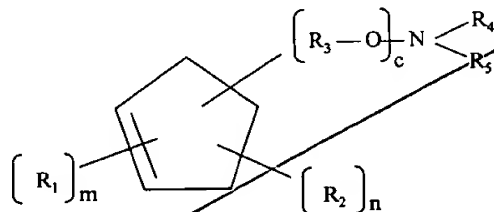
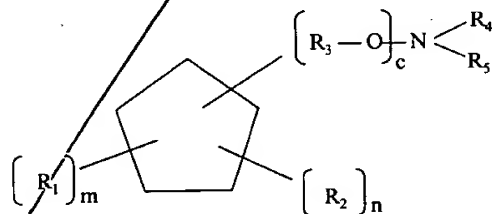




wherein a is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , R_3 , and R_4 are individually a hydrocarbyl group; Y is -OH, -NH₂, or



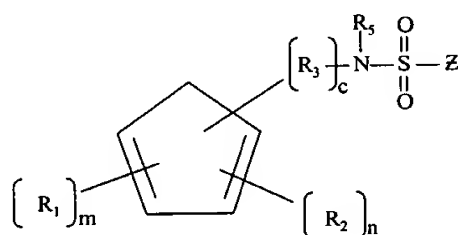
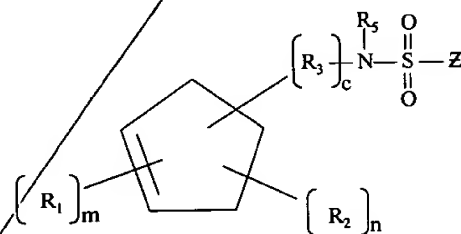
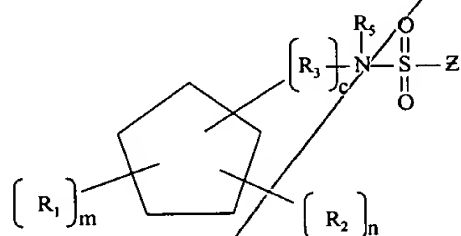
8. (Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



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wherein c is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R₁, R₂, and R₃ are individually a hydrocarbyl group; R₄ and R₅ individually are hydrogen or hydrocarbyl.

9. (Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

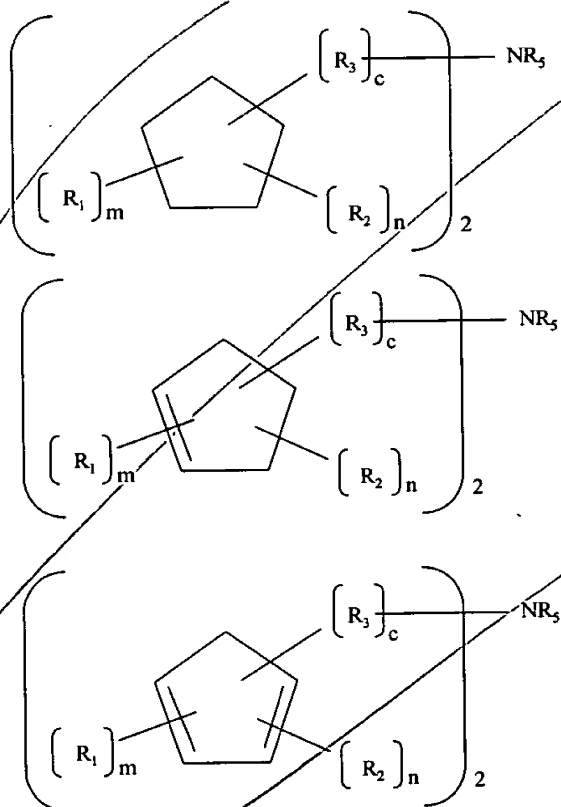


wherein c is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R₁, R₂, are individually a hydrocarbyl group; R₅ is hydrogen or hydrocarbyl; Z is hydrocarbyl.

10. (Once Amended) The magnetic recording medium of claim 4, wherein the

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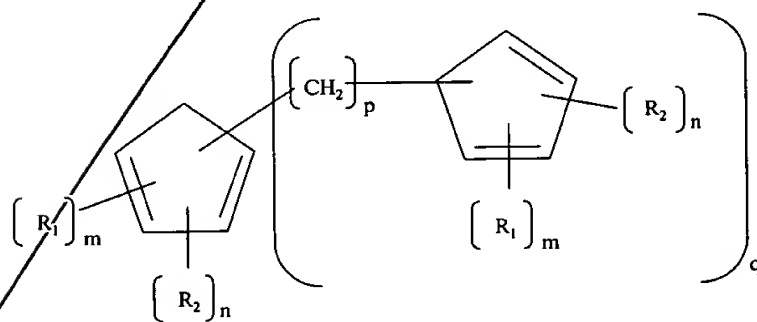
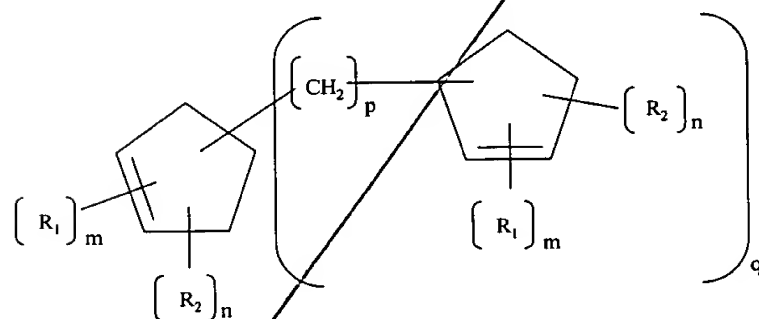
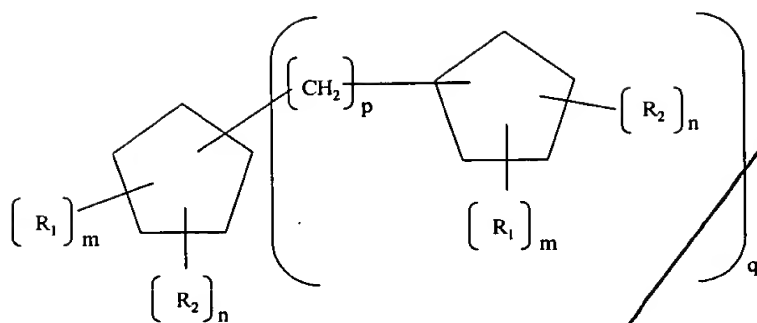
hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



wherein c is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , and R_3 are individually a hydrocarbyl group; R_5 is hydrogen or hydrocarbyl.

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11. (Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

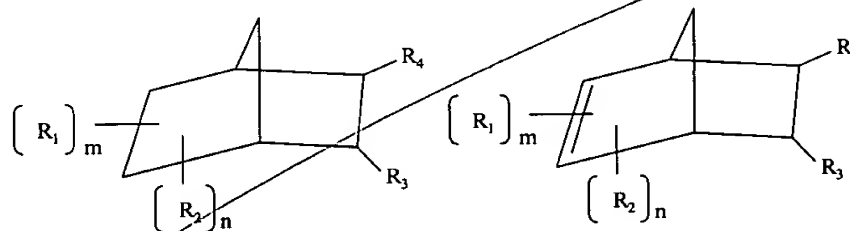


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wherein p is 1, 2, 3, ..., or 10; q is 1, 2, 3, ..., or 10; m and n are zero or a positive integer; R_1 and R_2 are individually a hydrocarbyl group.

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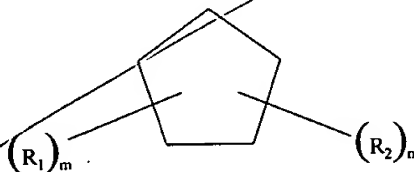
(Once Amended) The magnetic recording medium of claim 4, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



wherein m and n are zero or a positive integers; R_1 and R_2 individually are a hydrocarbyl group; R_3 and R_4 individually are hydrocarbyl, hydroxy, nitrile, carboxylic acid, carboxylic amide, or carboxylic ester.

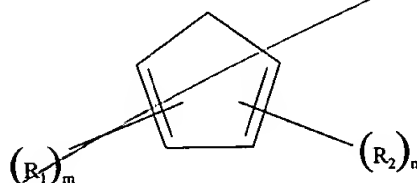
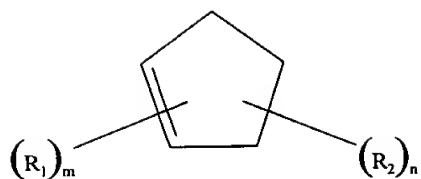
13. The magnetic recording medium of claim 1, further comprising:
a protective layer between the magnetic layer and the lubricant layer.

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14. (Once Amended) The magnetic recording medium of claim 13, wherein the lubricant layer includes a hydrocarbyl-substituted cyclopentane, a hydrocarbyl-substituted cyclopentene, or a hydrocarbyl-substituted cyclopentadiene as represented by the following respective formulas:



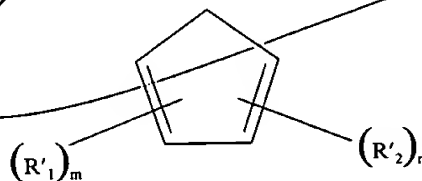
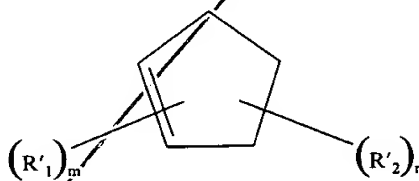
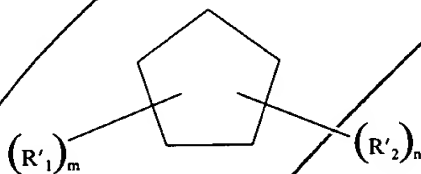
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wherein R_1 and R_2 are respectively a hydrocarbyl group, and m and n are respectively zero or a positive integer and the sum of $m + n$ is greater than zero.

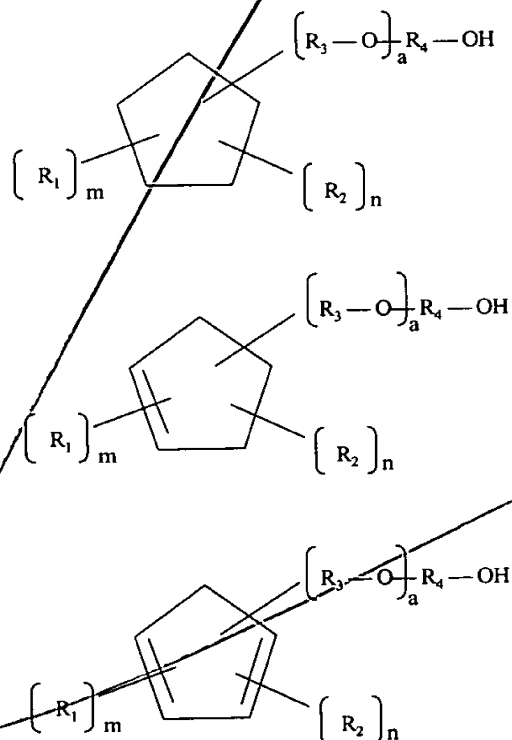
15. (Once Amended) The magnetic recording medium of claim 13, wherein the lubricant layer includes a hydrocarbyl-substituted cyclopentane, a hydrocarbyl-substituted cyclopentene, or a hydrocarbyl-substituted cyclopentadiene as represented by the following respective formulas:



wherein R'_1 and R'_2 are respectively a functionalized hydrocarbyl group which includes a functional group selected from -OH; -NH₂; carboxylic acid; carboxylic ester; phenolic ester; polyether; amide; amine; sulfonamide; thiophosphate; and phosphate, and m and n are respectively zero or a positive integer and the sum of m + n is greater than zero.

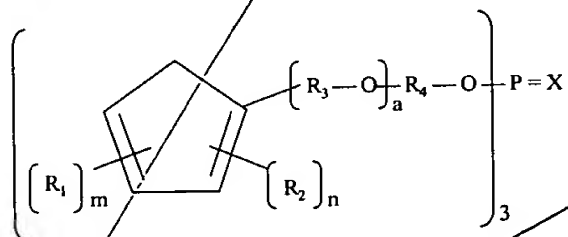
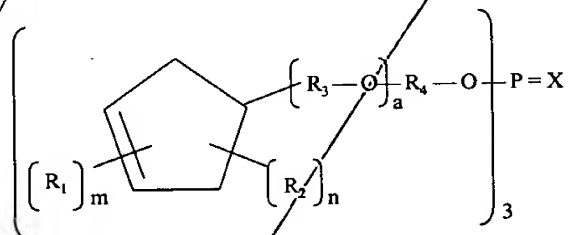
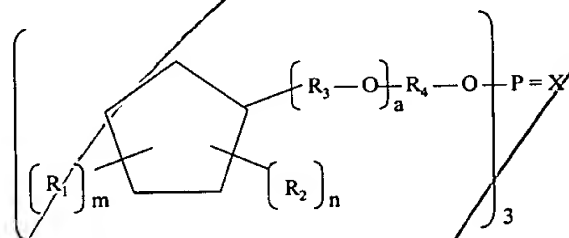
16. (Once Amended) The magnetic recording medium of claim 13, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene include at least one functional group selected from the group consisting of hydroxy, carboxylic acid, amine, carboxylic ester, carboxylic amide, phosphate, and sulfur-containing groups.

17. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



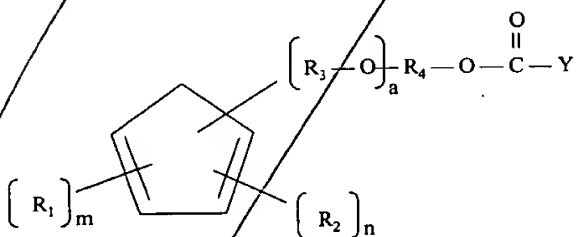
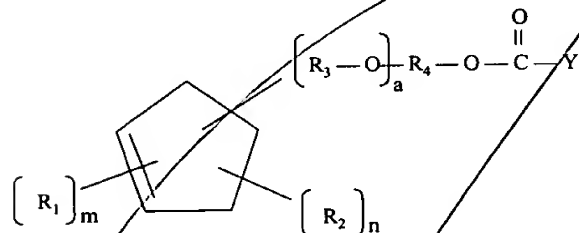
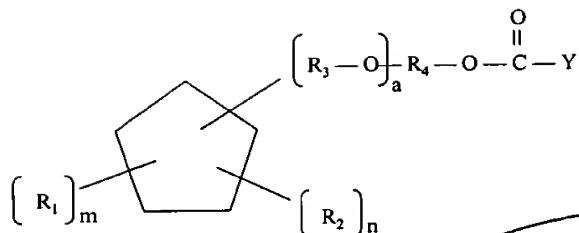
wherein a is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , R_4 are individually a hydrocarbyl group.

18. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

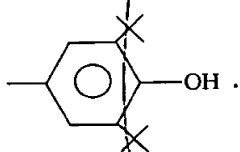


wherein a is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , R_3 , and R_4 are individually a hydrocarbyl group; X is either oxygen or sulfur.

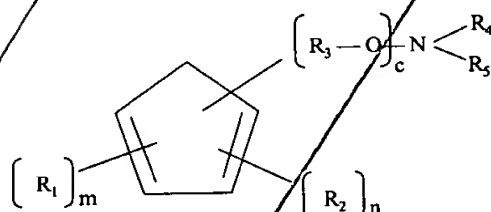
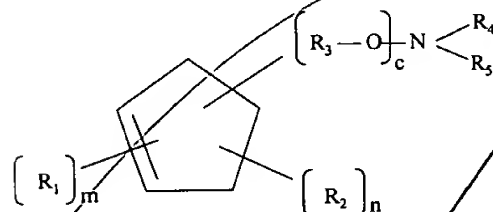
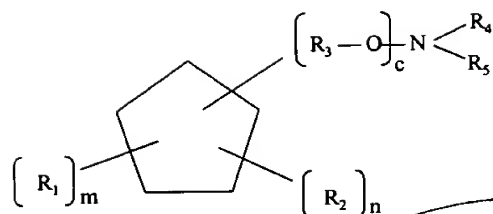
19. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



wherein a is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , R_3 , and R_4 are individually a hydrocarbyl group; Y is ---OH , ---NH_2 , or

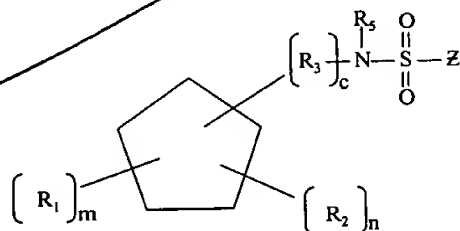


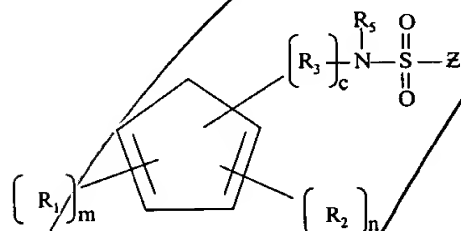
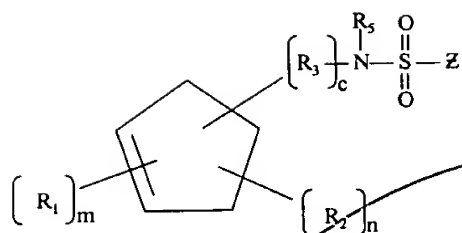
20. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



wherein c is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , and R_3 are individually a hydrocarbyl group; R_4 and R_5 individually are hydrogen or hydrocarbyl.

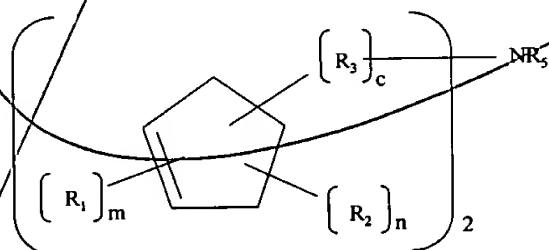
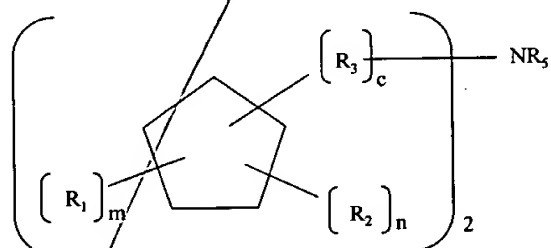
21. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

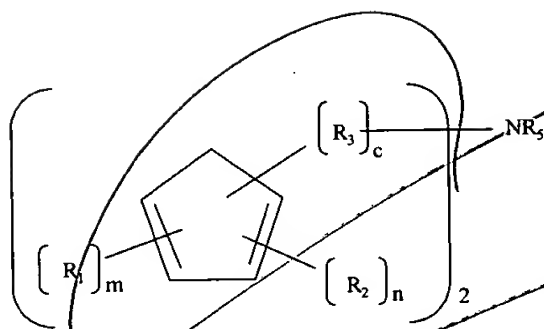




wherein c is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , and R_3 are individually a hydrocarbyl group; R_5 is hydrogen or hydrocarbyl; Z is hydrocarbyl.

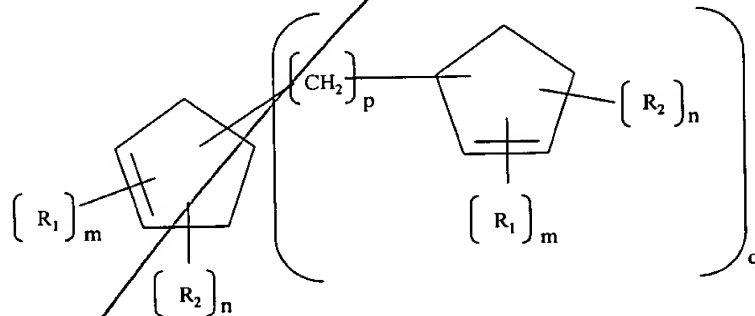
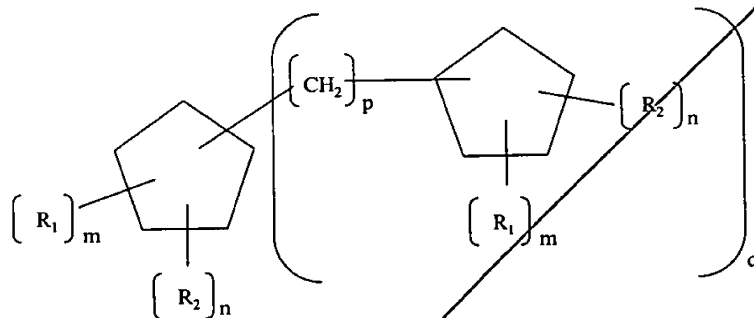
22. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:

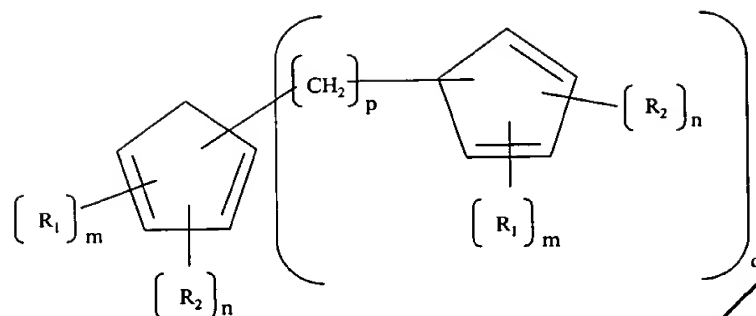




wherein c is 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10; m and n are zero or a positive integer; R_1 , R_2 , and R_3 are individually a hydrocarbyl group; R_5 is hydrogen or hydrocarbyl.

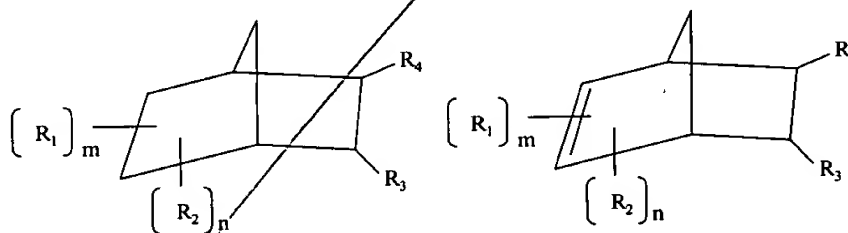
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C5* 23. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:





wherein p is 1, 2, 3, ..., or 10; q is 1, 2, 3, ..., or 10; m and n are zero or a positive integer; R_1 and R_2 are individually a hydrocarbyl group.

24. (Once Amended) The magnetic recording medium of claim 16, wherein the hydrocarbyl-substituted cyclopentane, hydrocarbyl-substituted cyclopentene, or hydrocarbyl-substituted cyclopentadiene are represented by the following respective formulas:



wherein m and n are zero or a positive integers; R_1 and R_2 individually are a hydrocarbyl group; R_3 and R_4 individually are hydrocarbyl, hydroxy, nitrile, carboxylic acid, carboxylic amide, or carboxylic ester.

25. (Once Amended) A magnetic head, comprising:
 a head; and
 a lubricant layer over at least a portion of the head, the lubricant layer including a compound selected from the group consisting of hydrocarbyl substituted cyclopentane, hydrocarbyl substituted cyclopentene, hydrocarbyl substituted cyclopentadiene, and mixtures thereof.
26. (Once Amended) A data storage/retrieval device, comprising:

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a magnetic recording medium including a magnetic layer over a support and a lubricant layer over the magnetic layer, the lubricant layer including a compound selected from the group consisting of hydrocarbyl substituted cyclopentane, hydrocarbyl substituted cyclopentene, hydrocarbyl substituted cyclopentadiene, and mixtures thereof; and

a magnetic head adjacent to the magnetic recording medium, the magnetic head sliding on the magnetic recording medium to read and write information on the magnetic recording medium.

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27. The data storage/retrieval device of claim 26, further comprising:
a power supply for applying a voltage across the magnetic recording medium and the magnetic head for reading or writing information on the magnetic recording medium.

28. The data storage/retrieval device of claim 26, wherein the device is a computer disk drive.

29. (Once Amended) A computer, comprising:
a CPU;
a disk drive connected to the CPU so that the disk drive can communicate with the CPU, the disk drive including:
a magnetic recording medium having a magnetic layer over a support and a lubricant layer over the magnetic layer, the lubricant layer having a compound selected from the group consisting of hydrocarbyl substituted cyclopentane, hydrocarbyl substituted cyclopentene, hydrocarbyl substituted cyclopentadiene, and mixtures thereof; and
a magnetic head adjacent to the magnetic recording medium, the magnetic head sliding on the magnetic recording medium to read and write information on the magnetic recording medium.

30. (Once Amended) A method of manufacturing a magnetic recording medium, comprising:
providing a non-magnetic support;

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 forming a magnetic layer on the support; and
 forming a lubricant layer over the magnetic layer, the lubricant layer including a compound selected from the group consisting of hydrocarbyl substituted cyclopentane, hydrocarbyl substituted cyclopentene, hydrocarbyl substituted cyclopentadiene, and mixtures thereof.

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 31. The method of claim 30, further comprising:
 forming a protective layer on the magnetic layer between the lubricant layer and the magnetic layer.

32. The magnetic recording medium of claim 1, wherein the lubricant layer further comprises one or more additives.

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 33. (Once Amended) The magnetic recording medium of claim 32, the additives are cyclic phosphazenes, metallic soaps, fatty acids, amides, fatty acid esters, higher aliphatic alcohols, monoalkyl phosphates, dialkyl phosphates, trialkyl phosphates, paraffins, silicone oils, animal oils, vegetable oils, mineral oils, higher aliphatic amines, inorganic fine powders, resin fine powders, unsaturated aliphatic hydrocarbons, or a mixture thereof.

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 34. The magnetic recording medium of claim 13, wherein the lubricant layer further comprises one or more additives.

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 35. (Once Amended) The magnetic recording medium of claim 34, the additives are cyclic phosphazenes, metallic soaps, fatty acids, amides, fatty acid esters, higher aliphatic alcohols, monoalkyl phosphates, dialkyl phosphates, trialkyl phosphates, paraffins, silicone oils, animal oils, vegetable oils, mineral oils, higher aliphatic amines, inorganic fine powders, resin fine powders, unsaturated aliphatic hydrocarbons, or a mixture thereof.

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cont 36.

36. The magnetic recording medium of claim 1, wherein the lubricant layer including a mixture of two or more lubricants; one lubricant is selected from the group consisting of hydrocarbyl-substituted cyclopentanes, cyclopentenes, and cyclopentadienes which are not functionalized; another lubricant is selected from the group consisting of hydrocarbyl-substituted cyclopentanes, cyclopentenes, and cyclopentadienes which are functionalized.

37. The magnetic recording medium of claim 13, wherein the lubricant layer including a mixture of two or more lubricants; one lubricant is selected from the group consisting of hydrocarbyl-substituted cyclopentanes, cyclopentenes, and cyclopentadienes which are not functionalized; another lubricant is selected from the group consisting of hydrocarbyl-substituted cyclopentanes, cyclopentenes, and cyclopentadienes which are functionalized.